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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,321	02/24/2004	Seifollah S. Nanaji	2400-725A	9698
27820	7590	09/09/2004	EXAMINER	
WITHROW & TERRANOVA, P.L.L.C. P.O. BOX 1287 CARY, NC 27512			HUYNH, KHOA D	
			ART UNIT	PAPER NUMBER
			3751	

DATE MAILED: 09/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/785,321

Applicant(s)

NANAJI, SEIFOLLAH S.

Examiner

Khoi D. Huynh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 41-68 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 41-51 and 55-65 is/are rejected.
- 7) ☒ Claim(s) 52-54 and 66-68 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 06/14/04
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the second heat exchanger sensor as recited in claims 45 and 59 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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Claim Objections

2. Claims 42 and 52 are objected to because of the following informalities: the recitation "a second valve" should read --a valve-- since there wasn't any introduction of a "first" valve. Appropriate correction is suggested.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 45 and 59 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear what structural limitation applicant intends to cover when claims 45 and 59 call for "a second heat exchanger sensor that measures the temperature of the cooling media entering the heat exchanger". Such recitation does not have any detailed support in the instant specification.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 41-43, 46-51, 55-57 and 60-65, as presently understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagamura et al. (5685169) in view of Nanaji et al. (6302165).

Regarding claims 41 and 55, the Nagamura et al. reference discloses a system for reducing the volume of vapor present in the ullage of a tank. The system includes a conduit (65,66) containing a cooling media, and a radiator (at 74) located inside the ullage of the tank and connected inline to the conduit. The system also includes a refrigerator unit (40) connected inline to the radiator via the conduit (65,66). The Nagamura et al. system is used to recirculate the cooling media to cool the gas generated in the tank, and thereby regulating the temperature and pressure of the tank (col. 8, lines 8-12).

The Nagamura et al. reference DIFFERS in that it does not specifically include a pump and heat exchanger as claimed. It, however, would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that the pump and heat exchanger of the Nagamura et al. system are commonly features that are conventionally included in the refrigerator for circulating and cooling the fluid medium (see cited references).

The Nagamura et al. reference also DIFFERS in that it does not specifically include an electronic controller as claimed. Attention, however, is directed to the Nanaji et al. reference which discloses a system for controlling the vapor present in the ullage of a tank. The system includes an electronic controller (at 50) for controlling various components that are used to control the vapor present ullage of the tank. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Nagamura et al. system by employing an electronic controller (if not already), in

view of the teaching of Nanaji et al., in order to accurately provide information regarding the status of the tank and control the component without human errors.

Regarding claims 42 and 56, the modified Nagamura et al. system also includes a valve (at 88) coupled inline to the outlet of the heat exchanger (Fig. 1). The electronic controller (at 50) is obviously being used to automatically activate the valve.

Regarding claims 43 and 57, even though not specifically shown, it would have been obvious to one skill in the art to recognize that the use of a fan in conjunction with a heat exchanger for cooling the fluid medium in the Nagamura et al. system is known (see cited references).

Regarding claims 46-51 and 60-65, the modified Nagamura et al. device also includes an ullage temperature sensor (68 of Nanaji et al.), an ambient temperature sensor (61 of Nanaji et al.), an ambient pressure sensor (63 of Nanaji et al.), and a storage tank pressure sensor (67 of Nanaji et al.). The electronic controller (at 50) controls the activation of the pump and heat exchanger according to the inputs of the sensors.

7. Claims 44 and 58, as presently understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over the modified Nagamura et al. in view of Hilliard, Jr. et al. (5513680).

The Nagamura et al. reference also DIFFERS in that it does not specifically include a heat exchanger temperature sensor as claimed. Attention, however, is directed to the Hilliard, Jr. et al. reference which discloses an

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apparatus for venting volatile organic compound vapor having a heat exchanger (at 26) for cooling the gas, and a temperature sensor (at 13) which measures the temperature of the gas leaving the exchanger. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the modified Nagamura et al. apparatus by employing a heat exchanger and its associated temperature sensor, in view of the teaching of Hillard, Jr. et al., so that the temperature of the fluid medium could be adjusted to maximize the condensation of the gas inside the tank.

Allowable Subject Matter

8. Claims 52-54 and 66-68 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Leonard was cited to show an apparatus that uses a condenser located inside a tank for cooling generated gas. Mayer was cited to show a fuel system having a refrigerator with a heat exchanger and a pump. Itoh et al. was cited to show a refrigerator having a pump and a heat exchanger. JP 09014819 and JP 10300259 were cited to show a refrigerator having a pump, a heat exchanger and a fan for cooling the heat exchanger.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khoa D. Huynh whose telephone number is (703) 306-5483. The examiner can normally be reached on M-F (7:00-4:30) Second Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Huson can be reached on (703) 308-2580. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Khoa D. Huynh
Patent Examiner
Art Unit 3751

HK
09/06/2004